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NATO C3 Adequacy in a Changing Europe

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Submitted to:  
Major Tritchler  
and  
Mrs. Cundick  
For the Command and Control Systems Course  
Communications Officers School  
Quantico, Virginia

by

U.S.M.C.  
Captain J.J. Poletto  
Captain N.G. Bachert

TAIWAN  
Mr. T.A. Hsing

U.S.A.F.  
Captain J.L. Felderman

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## NATO C3 Adequacy in a Changing Europe

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Although the Soviet threat has been diminished, NATO remains necessary to the continued security of Europe. As a result of the changes in Central Europe, NATO C3 posture has been significantly improved.

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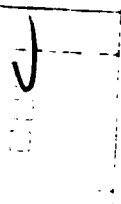
The North Atlantic Treaty Organization was formed in 1949 to meet the threat of Soviet expansionism. Two North American and nine European nations forged an alliance to "safeguard the freedom, common heritage, and civilisation of their peoples, founded on the principles of democracy, individual liberty, and the rule of law."(11,14) In the forty two years of its existence the North Atlantic Treaty Organization has been the single most important factor preventing a third world war. Throughout these four decades, the dynamics of world politics and growth in technology have altered the doctrine of mutual defense. While there is little doubt that NATO has successfully accomplished its mission for four decades, radical changes occurring in Europe have spawned debate over what the future of NATO will become. Suggestions offered range from the total dissolution of the alliance to minor adjustments of the NATO command structure. Regardless of the proposal, it is generally agreed that NATO's strategic mission must shift from a focus on an obsolete Warsaw Pact. A significant challenge for NATO will be to chart a path for future C2 plans and operations in the absence of a clearly defined strategic focus.

Since 1951 when General Dwight D. Eisenhower became the first Supreme Allied Commander Europe (SACEUR), the NATO alliance has attempted to organize for a collective stance in

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Dep. Dir. Marine Corps  
~~Commissioned~~ Officer School

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defense of Europe. Eisenhower established the Supreme Headquarters Allied Powers Europe (SHAPE) in Paris and began building a command structure that needed to reach to every corner of the alliance to ensure the capability implied in the treaty's tenet" that an armed attack against one...shall be considered an armed attack against them all..." (11,14)

Under SHAPE, subordinate headquarters were established for Northern Europe at Oslo, Central Europe at Fountainebleau, and Southern Europe at Naples, and later an Atlantic Command at Norfolk. The specification in Article 4 of the treaty which called for the parties to "consult together" in matters pertaining to "territorial integrity, political independence, or security," foreshadowed the need for an innovative approach to command and control. Implicit in any command and control system developed for NATO, would be the need to facilitate political consultation to meet the terms of the treaty. The foundation of Eisenhower's first command and control system was built around the facilities, transportation, personnel, and communication assets provided by national governments.

#### SCOPE OF INVESTIGATION

The purpose of this paper is to examine NATO's historical approach to C3 and to consider the conceptual

adequacy of systems implicit in this approach. Our investigation will touch on the strategic, operational, and tactical issues pertaining to C3, with primary emphasis given to the central theatre of operations. We will also discuss the current attempts to redefine NATO strategy in response to the changes in the Warsaw Treaty Organization (WTO) and the Soviet Union. We will attempt to draw questions as to the adequacy of the NATO C3 system in light of these changes.

The multifaceted nature of the NATO C3 philosophy, combined with the depth and complexity of the systems, prevent us from taking anything but a broad based approach. We will however, discuss specific systems and consider their interoperability. In the course of our investigation we consulted numerous sources for information including classified documents, historical accounts, magazine articles, and personal interviews with members of the Major Nato Commands (MNC) and allied officers. All of the information presented here has been taken from open sources. Any conclusions we draw are based on our consideration and represent no official position.

#### NATO STRUCTURE

An investigation into NATO C3 must begin with an explanation of the command structure since this forms the

foundation upon which the systems are built. The strategic area covered by the North Atlantic treaty is divided among three Commands (European, Atlantic, and Channel) and a Regional Planning Group (Canada and United States). The three Major NATO Commands (MNC) are Supreme Allied Commander Europe (SACEUR), Supreme Allied Commander Atlantic (SACLANT) and Allied Commander-in-Chief Channel (CINCCHAIR). The Canada, US Regional Planning Group (CUSRPG) is not considered a command. However, the three MNCs and CUSRPG report to the Military Committee (MC) the highest military authority in NATO. The MC is comprised of the Chiefs of Staff of each member nation. In order for the MC to function on a continuous basis each nation appoints a permanent military representative as a member of the MC. The MC maintains authority over a number of military agencies including the agencies that deal with C3 issues.

The International Military Staff (IMS) was established in 1967 to facilitate the operation of the MC. The IMS is headed by a Director of three star rank, who is nominated by the member nations and selected by the MC. There are six divisions within the office of the Director IMS: Intelligence, Plans and Policy, Operations, Logistics and Resources, Armaments and Standardization, and Communications and Information Systems. Within the Communications and

Information Systems (CIS) Division there are various CIS agencies which provide the MC with technical advice:

- NATO Communications and Informations Systems Committee (NACISC)
- Allied Communication and Computer Security Agency (ACCSA)
- Allied Long Line Agency (ALLA)
- Allied Radio Frequency Agency (ARFA)
- Allied Tactical Communications Agency (ATCA)
- Allied Data Systems Interoperability Agency (ADSIA)
- NATO Communications Information Systems Agency (NCISA)
- Allied Naval Communications Agency (ANCA) (12,356)

NATO is an alliance of sixteen sovereign nations and not a supranational authority. (12,263) This distinction is significant because NATO has no authority over national governments. NATO is the means by which member nations coordinate common approaches to defense. The North Atlantic Council (NAC) is the highest authority within NATO. There are three functional levels within NAC, the heads of state, the ministerial, and the permanent representative (PERMREP) levels. It is through the NAC that the PERMREPS, who hold ambassadorial rank, arrive at consensus opinions. Military policy matters are considered in the Defense Planning Committee (DPC) which is made up of each nation's PERMREP. The DPC is supported by the International Staff (IS) and a number of committees, including NATO Communications and

Information Systems Committee (NACISC) previously mentioned in relation to the Military Committee. What emerges from this structure is a complex series of relationships between national governments, NATO civil organizations, and military organizations.

The military forces of member countries available to NATO fall into two categories. Assigned forces are those national forces which come under the operational control of a major NATO commander (MNC) when required in accordance with prescribed conditions. Earmarked forces are those forces which national governments have agreed to assign to an operational command of a MNC at a future date. Generally, national forces remain under national command in peacetime. However, staff members at various NATO headquarters, certain air defense units, some communications units, and four task-organized multinational units are exceptions.

#### STRATEGY OVERVIEW

The strategic objective of the North Atlantic Alliance is the prevention of war while maintaining the political, social, and economic security of each member nation. Most analysts agree that deterrence of an attack on the alliance can only be maintained by coupling United States security with that of Europe. In other words, the United States



provides the strength which gives the alliance its deterrent capability. The stronger the US commitment, the greater the deterrence. A second fundamental principle in the effectiveness of the alliance lies in the axiom of strength in unity. The challenge to the effectiveness, indeed the survival of NATO over the past four decades has been the maintenance of a unified stance against individual national interest.

Since 1967 NATO has ascribed to the strategic defense concept of flexible response and forward defense. A basic explanation of this concept is found in the NATO Handbook.

The strategy calls for a balanced combination of both nuclear and conventional forces sufficient to be a credible deterrent against aggression and, if deterrence were to fail, capable of direct defense including escalation under political control to the level of response necessary to persuade an aggressor to cease an attack and withdrawal. Flexibility of response means forces must be deployed in adequate numbers and locations, prepared to respond firmly and effectively. The doctrine of flexible response is characterized by reliance on strong conventional forces backed by nuclear weapons.

The earlier approach of massive retaliation and assured destruction gave way to a more pragmatic limited war strategy. The flexible strategy emphasized conventional force strength to forestall the use of tactical nuclear weapons by either NATO or the Soviet Warsaw Treaty

Organization (WTO). It was envisioned that conventional forces would delay an invading force long enough that the enemy could reflect on the consequences of his military action before the full weight of the West's nuclear forces was launched. Faced with the threat of escalation, it was believed that the Soviets would not attempt an invasion.

Throughout the seventies a debate among alliance members began to emerge as to the actual threat and the corresponding nuclear threshold. The debate essentially boiled down to whether the alliance would meet an invading force with conventional or nuclear forces first. In either case the consequences for Europe were grave. The validity of the concept of flexible response was called into question. In NATO Strategy and Nuclear Defense, Carl H. Ammes writes:

It is beyond the bounds of credibility that the enemy would launch an invasion with the firm intention of accepting defeat in the event that NATO carried out its well advertised intent of using nuclear weapons. Nevertheless, if NATO nuclear weapons are withheld until its forces are in danger of being overrun, the people and resources in the path of the invasion would have already suffered a great deal of destruction from conventional weapons. The use of nuclear weapons by NATO to prevent defeat at that time, would only add to the local devastation, while the United States and Russia would remain untouched.

Perceptual differences of both the threat and approach to countering the threat by individual member nations, had

direct influence in each nations interpretation of flexible response. Today, NATO is in the midst of an identity crisis caused by the growing debate over what the strategic focus of the alliance is and should be. At the root of this identity crisis are three fundamental issues. The most obvious is the dissolution of the Warsaw Treaty Organization (WTO) and the perceived change in Soviet strategic objectives. In other words the end of the cold war. The second and most significant issue is economics. Defense budgets of alliance member nations will suffer cutbacks. The relationship between the perceived threat and the amount of money allocated for defense is already apparent in the US Congress mandate for force reductions. The third fundamental issue centers around the belief that NATO is an anachronism in a politically unified Europe.

#### REDEFINING THE THREAT

To determine what kind of C3 system supports NATO defense requirements, we have to know what the threat actually is. Do we need a system to respond to an all-out surprise nuclear attack or a gradually building conventional attack? It is our contention that NATO must maintain the capability to respond to both, but that the latter seems to be the most likely scenario.

The Soviets were dependent on the Warsaw Pact forces to participate in a coordinated theater operation against NATO. Today, it is more likely that the former WTO members would fight a soviet thrust into Western Europe through their countries. All former WTO nations have told Soviet troops to leave. Withdrawal of Soviet forces from Hungary and Czechoslovakia is to be completed by mid-1991. The complete departure of Soviet forces from the territories of what was the German Democratic Republic will be completed by the end of 1994.

The Soviets have shown a clear desire to improve relations with the United States and Western Europe. A fundamental revision of Soviet military doctrine was a stated objective of President Gorbachev's new approach to national security. At the January 1990 Conference on Security and Cooperation in Europe/ Confidence and Security-Building Measures (CSCE/CSBM), Military Doctrine Seminar, in Vienna, Soviet Army General M.A. Moiseyev, Chief of the General Staff, claimed the Soviet Union now operates under a new set of principles. The guidelines were set forth as follows:

- \* War is no longer considered a means of achieving political objectives.
- \* The Soviet Union will never initiate military action against another state.
- \* The Soviet Union will never initiate the use of nuclear weapons.

- \* The Soviet Union has no territorial claims against, nor does it consider any other state to be its enemy.
- \* The Soviet Union seeks to preserve military parity as a decisive factor in averting war, but at much lower levels.

President Gorbachev announced in January 1989 that a 14.2 percent unilateral reduction in military outlays would be completed by 1991. Soviet military expenditures fell to between four and five percent in 1989 with weapons procurement expenditures bearing the bulk of the cuts. The deepest cutback occurred in the production of tanks to about 1700 from 3400. Smaller but significant cuts also occurred in the procurement of artillery pieces and multiple rocket launchers. Despite the apparent advantages gained by expanding the distance of Soviet combat troops from NATO borders and the encouraging overtures of peaceful cooperation of the Soviet Union, the Soviet Union remains the most capable and likely threat to NATO. Severe economic strains on the Soviet economy and seven years of U.S. military cutbacks have not deterred the Soviet Union from building military hardware far in excess of any conceivable defensive needs. Additionally on July 3, 1990 former Soviet Foreign Minister, Shevardnadze claimed that the percentage of Soviet gross national product dedicated to the military is actually 25 percent. On October 23, 1989 Shevardnadze also admitted that the US had been right for six years in calling the

Krasnoyarsk radar facility a central violation of the Antiballistic Missile Treaty. His assertion that it took President Gorbachev four years to sort things out implies a military cover-up. Ranking Soviet generals had lied in at least twelve sessions of the US-Soviet Standing Consultative Commission that reviews compliance issues. (8,45) This has led some western analysts to speculate that a "shadow government" directing military policy exists alongside the Gorbachev government. In February 1990, 72 Soviet SS-23 launchers and missiles, some with nuclear adapters, were discovered by the reform governments of East Germany, Czechoslovakia, and Bulgaria: a gross treaty violation of the Intermediate Nuclear Forces (INF) Treaty. In March 1990, a Soviet soldier twice prevented US INF Treaty inspectors at the Votkinsk missile plant from inspecting sealed missile canisters. (8,45)

The social/economic unrest currently underway in the Soviet Union makes for a very uncertain political future. Nations historically deal with threats to their unity through repression, which often leads to civil war. If the Soviets are incapable of creating the perception of an outside threat to unify the country, then they may use force against their own people. This may seriously destabilize the security in Europe. This prospect has caused great concern.

NATO Secretary General Manfred Woerner, in a speech to the NATO ministerial meeting observed that: "The developments we have seen thus far have been impressively peaceful. But the pressures which might be released by long-overdue change could prove explosive. Alliance solidarity and a solid defense are thus needed as the basis of our security. They ensure that changes remain peaceful and that no government will ever be tempted to resort to force to solve domestic problems." The Soviets have taken clear steps to improve their image as a threat to world peace. The likelihood of a conflict stemming from a Soviet-NATO confrontation appears lower than ever before. But the threat is still present even though in our opinion the threat has become less dangerous. We believe that the possibility of a massive surprise attack has been all but eliminated. Officials are talking about attack warning times in terms of months, not days. We feel that C3 systems currently in place will achieve a higher degree of efficiency for warning, alert, and transition to war as time for the Soviets to launch an attack is lengthened.

#### NATO C3

In NATO, C3 means command, control, and consultation. The political nature of NATO emphasizes the need for

political consultation and civil emergency planning for NATO C3 architecture. The first NATO C3 system was a NATO owned communications system with terrestrial resources, switching centers for voice and record traffic, user terminal devices, and satellite communications. Today NATO has begun incorporating modern sensors, information systems, and facilities into their C3 posture.(5,145) The original NATO Integrated Communication System (NICS) was a NATO owned system which was to be a survivable, single network linking NATO capitals and military commands. In 1971 the NATO Integrated Communications Systems Management Agency (NICCSMA) was given the task of NATO communications planning and implementation. It was not until 1973 that the objectives set forth in 1971 evolved into a phased implementation of two major stages. NICS 1 was to provide new voice switching services, integrate existing telegraph services, and a new nodal switched system. NICS II was to provide an integrated, more survivable, secure digital system.(5,146)

In 1982 the Major NATO Commanders (MNC) were tasked with planning the command and control capabilities necessary to execute their missions in support of NATO. As a result the first Tri-MNC C2 plan was published in 1983. The identified deficiencies prompted the adoption of mission oriented approach to C2 planning and acquisition programs.



In 1986 the Tri-MNC C2 plan examined the ability of C2 systems to meet strategic objectives. The level of conflict was examined against the level of required response capability. It was determined that the capability to support the spectrum of conflict was not sufficiently adequate at the higher levels requiring extensive response. Also in 1986, the NATO Communications and Information Systems Agency (NACISA) was formed with the charter of being responsible for all CIS planning. (5,146)

The major communications systems in NATO include; NATO funded, nationally operated systems; NATO owned and operated systems; and national systems. The long-term objective is to combine these capabilities under the control of NATO Integrated Communications System (NICS). The NATO communication system includes three main parts: a satellite system with ground terminals in every NATO country, a terrestrial transmission grid from Norway to Turkey, and voice/message switching facilities. This network provides the backbone for CIS support of national strategic objectives. While there was little question as to the adequacy of this system to facilitate consultation and implement alert measures at the national level, questions existed as to the survivability of such a system. Today this concern has been somewhat lessened by adoption of INF which

has significantly reduced the possibility of theater nuclear war.

At the tactical level, which includes units below corps the major concern with C2 adequacy has been interoperability. Originally, interoperability issues were addressed through efforts to use common equipment. Today efforts to standardize components and procedures are through NATO Standardization Agreements (STANAGs). Since the mid-eighties STANAGs have since been broadened to include the wider issues associated with concept development, doctrines, and procedures designed to achieve effective levels of compatibility and interoperability. Even though significant achievements have been made in the area of interoperability, there still exists six tactical systems within NATO which are not interoperable. Economic issues stand as an impediment to total interoperability. NATO defense industry is hampered by tight budgets, protectionism, and internationalization of defense item production. NATO currently meets its strategic common information systems acquisition requirements with common funds contributed by NATO nations and administered through different budget committees. Thus, NATO C3 requirements are satisfied by programs requiring the consensus of many NATO countries.

The NATO contracting process, which encourages the

participation of industry in the identification of technical solutions to C3 problems, has greatly enhanced the national industrial participation. This process allows a full discussion of the requirements of NATO C3, and ensures NATO's needs are understood. Multinational consortia bring additional knowledge and resources to the research and development arena. An outgrowth of this process is the ability to secure all military communications. Tactical voice communications is being secured by the addition of encryption devices and the development of embedded crypto systems on tactical radio. Secure tactical radios coupled with the increased warning time to allow NATO to prepare and exchange liaison teams, have significantly enhanced NATO tactical C3 posture. (10,46)

Some of the current NATO systems that offer a high level of flexibility, reliability, and survivability to the Command and Control elements are listed in the following paragraphs:

The ACE HIGH system is a terrestrial network of tropospheric scatter and line-of-site microwave links that provide NATO with transmission capabilities from Norway to Turkey. It has proven to be a highly reliable command and control communications system during peacetime, but its wartime use would be marginal because of its lack of

reconstitution capabilities. The system is scheduled to be replaced with the NATO Terrestrial Transmission System (NTTS). An all-digital multichannel communications network that will incorporate the CIP-67 upgrade system and become the principal transmission backbone for the NATO Integration Communications System (NICS).

The Automated Command, Control, and Information System (ACCIS) provides intercomputer network support between the major ACE C2I centers on the NICS terrestrial system. The system is being upgraded and expanded to provide more secure, hardened sites; a greater routing diversity for better survivability; and improved remoting capabilities.

The Communications Improvement Program (CIP-67) improved and expanded NATO's microwave communications systems and provided an interface system for NATO's NICS, IVSN, TARE, ACE HIGH, SATCOM III, and national communications systems. It provides NATO with an EMP-protected backbone system that has both, a mixture of fixed and transportable facilities and alternative routing diversity through reconfiguration capabilities.

The EIFEL system is a tactical multinational computerized information system designed as an electronic Command and Control system. It is governed by a multinational Steering Group of five General officers and a

Configuration Control Board. EIFEL supports two primary functions: rapid, secure, and flexible tasking of allied air forces in the Central Region and accurate, current reporting of combat status and mission results to battle commanders. It handles such a broad base of information that the NATO intelligence community monitors the system.

The Initial Voice Switched Network (IVSN) provides an automated circuit switched telephone network to users throughout the NATO Alliance. Connectivity is through circuits on systems like NATO SATCOM, ACE HIGH, CIP-67, and PTT. IVSN can interconnect nonsecure telephones, secure voice terminals, STU-III's, PABX, and low speed data terminals. It serves as the backbone for interconnecting NATO's nuclear command and control through the SCARS II system.

The NATO Satellite Communications System (SATCOM III) provides direct communications from NATO Headquarters in Brussels Belgium, to NATO members capital cities, the major NATO regional command centers, and all of NATO's forces commanders throughout the theater. The system is secure, partially EMP hardened, and moderately anti-jam resistant. It provides a wide and diversified range of coverage throughout the Eastern North American continent and the NATO countries of Europe.

The Postal Telephone and Telegraph (PTT) system was a cross linking of the member nations civilian communications networks to develop a robust military communications system with a great deal of diversity and redundancy already built-in. The system has been in use since the early days of the alliance and has been upgraded numerous times to keep pace with the expanding command, control and communications requirements of NATO. As each nation improved its communications systems the over all effectiveness to NATO's command and control was improved. (14,B-1-B-25)

#### NATO FUTURE

In the opinion of many experts, NATO's future role and strategic focus are at best ambiguous. Charting a path for the future is understandably difficult. The traditional threat upon which the strategic defense of the alliance has been built appears significantly degraded. The WTO has ceased to exist; and the Soviet Union has made tremendous progress in creating the perception that they have become a less ominous presence in Europe. If NATO is to survive into the next century a clear and expanded focus must be adopted. We believe that NATO as a deterrent to aggression in Europe is an enduring facet. The doctrine of flexible response continues to be a viable strategy. However, NATO must now

also plan for a non-traditional role and the possibility of expanded missions.

Treaty verification has become an increasingly discussed topic. Proposals for a comprehensive, centrally controlled system which incorporates the technology to conduct both cooperative and non-cooperative verification have been suggested. Within the latter category, C3 requirements would incorporate; airborne stand-off reconnaissance; shipboard reconnaissance; and land-based signals intelligence, seismic and environmental monitoring. (1,30) NATO has begun a study to examine the technologies required to conduct verification .

Conventional Forces Europe (CFE) agreements have called for force reductions in both Eastern and Western Europe to balanced levels far below the current numbers. However, as Dr. Ezio Bonsignore, Editor-in-Chief, Military Technology, points out in the Jan. 91 article entitled, Farewell to Arms (?) From Yalta to the Paris Charter, these agreements fail to consider the effects of former WTO nations becoming members or at least associates of the NATO alliance. An immediate implication for C3 will be how to fold these new nations into the NATO structure. Another important C3 consideration emerging from lower force levels in the central theater will be a greater reliance on the "trans-Atlantic bridge" for the

introduction of reinforcements from the US and Canada. Air Commodore Gabriel Ferenczy RAF (Ret.), Defense Support Division Director of C3 for NATO stated in Oct. 91 Signal article entitled, Allies Grapple with Structure as Central Threat Diminishes, that the reliance on reinforcements will place greater emphasis on C3 for SACLANT.

Tactical C3 will emphasize the need for continued and closer cooperation among member nations. Smaller forces within the central theater will place greater emphasis on mobility and interoperability. SHAPE has already begun investigating the C3 difficulties associated with the employment of multi-national corps. While interoperability of fire support and communications systems may present initial difficulties, the establishment of permanent brigades assigned to NATO will significantly lessen interoperability problems. Multi-national operations is not a new concept within NATO, and we feel that this is not an impediment to employing military options. Interviews we have conducted with NATO alliance officers who have participated in multi-national exercises, have indicated that there were no significant problems when ample time is allotted for exchange of liaison teams. In light of the successes in Desert Storm, where thirty nations were able to interoperate with little degradation in effectiveness, it seems to us that an alliance



which has endured for forty years would have even less problem.

Two programs which will take on added significance in support of both a traditional and expanded NATO role are, NAVSTAR Global Positioning System (GPS) and Battlefield Information Collection and Exploitation System. In the latter case, the system could be adaptable for conducting treaty verification. GPS would support naval and ground forces spread over greater distances. Smaller forces spread over a wide area will also emphasize the requirement for mobile command centers. Heavier reliance on satellite line of sight and HF radio will also emerge.

We believe that NATO participation outside of theater will become a greater possibility. The southern flank buttresses a region in continuous turmoil. The threat to the security of Europe has extended into other arenas. In an age of continuous change, NATO will find itself dealing more directly with the threats of international terrorism, drug trafficking, and religious fanaticism. Whatever the future holds for NATO, it still must provide the framework for political, economic, and military defense. To meet those objectives, NATO C3 issues must continue to receive priority consideration in committee funding and national participation.

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